



# NATIONAL TRAINING CENTER

## Protective Force Training Department

### Standard Operating Procedure

Title:	Live Fire Range Operations
Number:	PFT-SOP-644
Revision:	3

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#### REVISION HISTORY

Rev.	Effective Date	Description of Revision
3	08/29/11	Procedure updated with the following: LFR Safety Specialist replaced ESH&QA Director; acceptance of MOAs from non-DOE range users; use of new risk compliance review document (RCRD) included as Appendix I; appropriate body armor; process for increased inspection of the live fire shoot house; ricochet hazards; updated directives; updated firearms/calibers; and changes in internal procedures.
2	08/10/09	Added accountability to ESH&QA Department and eliminated metric measurements for shooting and other long distances
1	11/19/07	<ul style="list-style-type: none"> <li>Re-designated and reformatted as 600-level procedure</li> <li>Updated Sections 5, 7, 8.4.2.5, 8.4.2.6, 8.4.3, 8.4.9.2, 8.6.2, 8.9.4, 8.9.7.3, and Appendices A, B, and G</li> </ul>

## 1.0 PURPOSE

The purpose of this standard operating procedure (SOP) is to assign responsibilities for the safe operation of the U.S. Department of Energy (DOE) Office of Health, Safety and Security (HSS) National Training Center (NTC) Live Fire Range (LFR).

As a tenant of Kirtland Air Force Base (KAFB), the NTC and its employees, contractors, and visitors must recognize and adhere to all applicable regulations. LFR users must obtain approval from the Protective Force Training (PFT) Manager, Rangemaster, and LFR Safety Specialist for training to be conducted outside the parameters of this procedure. All requests will be submitted to the DOE/NTC Director through the PFT Manager or NTC General Manager.

## 2.0 SCOPE

The procedures and responsibilities contained in this SOP are applicable to all NTC LFR users. LFR operations include training, demonstrations, rehearsals, testing or evaluation, and live fire or dry run exercises, under both day and night conditions. These procedures apply to DOE Federal or contractor personnel, NTC instructors and staff, NTC students (regardless of their place of employment), non-DOE agencies that may use the LFR facilities, and all observers.

Failure to comply with the safety rules presented in this SOP may be cause for removal from the LFR training areas. NTC employees may be subject to disciplinary actions, up to and including termination.

## 3.0 CANCELTION

This document supersedes PFT-SOP-644, *Live Fire Range Operations*, dated August 2009.

## 4.0 REFERENCES

- 4.1 10 CFR 851, Worker Safety and Health Program
- 4.2 DOE Manual 440.1-1A, DOE Explosives Safety Manual
- 4.3 DOE Order 440.1B, Worker Protection Program for DOE Federal Employees
- 4.4 DOE Order 470.4B, Safeguards and Security Program
- 4.5 DOE Order 473.3, Protection Program Operations
- 4.6 DOE Guide 450.4-1B, Integrated Safety Management System Guide
- 4.7 Military Handbook 1027/3B, Range Facilities and Miscellaneous Training Facilities Other Than Buildings
- 4.8 Army Regulation 385-63, Policies and Procedures for Firing Ammunition for Training, Target Practice and Combat

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### NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

- 4.9 U.S. Air Force Manual 91-201, Explosives Safety Standards
- 4.10 U.S. Department of Defense (DoD) 6055.9-STD, Ammunition and Explosive Safety Standards
- 4.11 NTC-PM-504, Emergency Management Plan
- 4.12 NTC-PM-508, Live Fire Range Safety Analysis Report
- 4.13 PFT-SOP-645, Live Fire Shoot House
- 4.14 PFT-SOP-646, Engagement Simulation Systems
- 4.15 PFT-SOP-649, Tactical Training Tower
- 4.16 PFT-SOP-652, Inclement Weather Training Restrictions
- 4.17 ESH-GP-518, Hazard Controls and Personal Protective Equipment
- 4.18 ESH-GP-531, Risk Analysis
- 4.19 ESH-GP-536, Shop Operations and General Maintenance
- 4.20 ESH-GP-549, Storage, Transportation, and Use of Explosives

## **5.0 DEFINITIONS**

- 5.1 **DAMAGED AMMUNITION.** Ammunition that is too damaged to permit safe firing, such as deformed or torn shell casings resulting from weapon malfunction or rough handling.
- 5.2 **HANG FIRE.** Ammunition that is struck by the weapon's firing pin and fires after a momentary delay.
- 5.3 **INSTRUCTORS.** Individuals responsible for providing instruction to students, conducting demonstrations, and operating firing ranges.
- 5.4 **LFR STAFF.** For the purpose of ammunition issue and return, LFR staff includes the PFT Manager, Rangemaster, and maintenance staff.
- 5.5 **MALFUNCTION.** A failure of a weapon to function properly or operate in the manner designed. The operator can normally clear a malfunction.
- 5.6 **MISFIRE.** Ammunition where neither the primer nor powder charge ignites when struck by the weapon's firing pin. The indicator for a misfire is when the shooter presses the trigger and only a "click" is heard.
- 5.7 **NON-DOE USERS.** Federal, state, and local (law enforcement/military) agencies that have a current Range Use Agreement (or RUA; see Appendix A for sample) or a Memorandum of Agreement (MOA) with the NTC to use the LFR facilities.

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### **NON-PROPRIETARY INFORMATION**

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- 5.8 SQUIB LOAD. Ammunition that is struck by the weapon's firing pin and only partially functions. When the shooter presses the trigger, the shooter hears a "pop" accompanied by reduced recoil.
- 5.9 STOPPAGE. Interruption of the cycle of operation.
- 5.10 UNAUTHORIZED DISCHARGE. The discharge of a firearm under circumstances other than (a) during firearms training with the firearm properly pointed downrange (or toward a target), or (b) the intentional firing at hostile parties when deadly force is authorized. (See Appendix B for additional information regarding actions to take in response to a UD or other significant event.)

## **6.0 POLICY**

It is NTC policy to conduct firearms and tactical training at the LFR in accordance with DOE requirements. Any deviation from the provisions of this SOP or other written procedures may be approved by the DOE/NTC Director (or designee). This decision may be based on recommendations from the PFT Manager, Rangemaster, and the LFR Safety Specialist.

All work at the NTC will be conducted in accordance with the DOE's Integrated Safety Management System. The NTC's policy is to incorporate safety into the planning and execution of all work and to protect all NTC and DOE personnel and visitors and their environment from hazards. The NTC will implement appropriate controls for those hazards that cannot be totally removed.

## **7.0 RESPONSIBILITIES**

Although each individual is responsible for his or her duties listed in this section, these duties may be delegated to another individual who is equally qualified to perform the same function.

### **7.1 DOE/NTC Director**

- 7.1.1 Ensure this document is available to all DOE/NTC staff.
- 7.1.2 Require DOE/NTC staff to read and adhere to this document, as appropriate to their area(s) of responsibility.

### **7.2 NTC General Manager**

The NTC General Manager is responsible for ensuring the activities conducted at the NTC comply with the requirements of all applicable regulations and this SOP.

### **7.3 Protective Force Training Manager**

The PFT Manager is responsible for the safe operation and maintenance of the LFR and all LFR facilities.

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#### **NON-PROPRIETARY INFORMATION**

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

7.3.1 Approve, or direct the revision of, written procedures governing operations at the LFR, and ensure updated procedures are approved (signed) by appropriate DOE/NTC and contractor staff.

7.3.2 Approve modification to, or construction of, LFR facilities prior to the start of work.

#### **7.4 Rangemaster**

The Rangemaster is responsible for the day-to-day operation and maintenance of the LFR.

7.4.1 Ensure all equipment is maintained in safe working order and all required materials are available.

7.4.2 Ensure ammunition requirements are forecast, and ammunition is procured and stored per SOP requirements.

7.4.3 Ensure range-related supplies are budgeted, purchased, stored, and issued correctly.

7.4.4 Ensure only approved weapons, targets, and supplies are used on the range for every training event.

7.4.5 Ensure the RUAs and MOUs for all LFR users are current and signed.

7.4.6 Maintain the following records:

- Range schedule
- Range use logs (see Appendix C)
- Range sign-in / sign-out log (see Appendix D)
- Ammunition inventory
- Expended Diversionary Device Log
- Range equipment inventory
- Key issue control and key logs
- Copies of all approved variances from DOE directives and this SOP

7.4.7 Conduct formal LFR orientation (using approved materials and documenting/retaining records) for new instructors and new LFR users that have RUAs or MOUs with the NTC.

7.4.8 Conduct annual orientation (using approved materials and documenting/retaining records) for LFR users with current RUAs or MOUs.

7.4.9 Provide training to LFR Maintenance staff on the safe use of equipment used at the LFR (Appendix E).

7.4.10 Coordinate NTC LFR training that is conducted outside of the LFR with the Controlled Firing Area Committee.

7.4.11 Coordinate any range or facility modifications that are required to support training.

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#### **NON-PROPRIETARY INFORMATION**

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.



- 7.4.12 Ensure instructor-to-shooter ratios are in accordance with the requirements of the DOE O 473.3, Protection Program Operations.
- 7.4.13 Schedule an annual emergency exercise at the LFR to comply with the requirements of DOE O 473.3.

## **7.5 Lead Instructor**

The Lead Instructor is responsible for the overall safe conduct of a specific course. The lead instructor will have the radio on Channel A4 for communications.

- 7.5.1 Schedule range and classroom requirements at least 60 days in advance. Schedule Paramedic requirements 60 days in advance (see Section 8.7 for Paramedic scheduling procedures). Provide ammunition requirements to the Rangemaster, via e-mail, 30 days prior to the start of class. In addition, if unique training aids are required, notify the Rangemaster at least 45 days prior to the start of class.
- 7.5.2 Sign for ammunition used to support training at both issue and turn in. Another LFR staff member must be present at issue and turn-in of ammunition. Ammunition will not be left unattended and will be secured or under observation at all times.
- 7.5.3 Act as Range Safety Officer (RSO) during NTC training.
- 7.5.4 Ensure instructor-to-shooter ratios are in accordance with the requirements of the DOE O 473.3.
- 7.5.5 Ensure all students are qualified to participate in training activities to be performed.
- 7.5.6 Prepare risk analysis reports (in conjunction with the LFR Safety Specialist) for PFT training involving hazards, and ensure no training is performed without an approved risk analysis report.
- 7.5.7 Promptly notify the Rangemaster of damaged or malfunctioning equipment.

## **7.6 Instructor**

The instructor is responsible for the supervision and safe conduct of all training activities conducted at the NTC LFR. Certified instructors, approved by the PFT Manager, are the only persons authorized to conduct training at the LFR. Instructors will have the radio on Channel A4 for communications.

- 7.6.1 Sign for ammunition used to support training at both issue and turn in. Another LFR staff member must be present at issue and turn-in of ammunition. Ammunition will not be left unattended and will be secured or under observation at all times.
- 7.6.2 Ensure all students and observers have received a safety briefing for the training to be performed that includes the basic range safety rules as well as course-specific safety issues.
- 7.6.3 Blow the "STOP" whistle and/or announce "CEASE FIRE" in the event of any observed safety violation.

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### **NON-PROPRIETARY INFORMATION**

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

- 7.6.4 Observe loading and unloading of weapons.
- 7.6.5 Conduct demonstrations for students.
- 7.6.6 Ensure all students are wearing required personal protective equipment (PPE) for the training to be undertaken. Eye and ear protection will be the minimum required for live fire.
- 7.6.7 Ensure a Paramedic is on duty and can be contacted by radio prior to training.
- 7.6.8 Notify the Paramedic prior to beginning training and when he or she is no longer required for the class.

**NOTE:** NTC training courses may be conducted on a temporary basis without the presence of a Paramedic with prior approval from the PFT Manager or Rangemaster. See Section 8.7 for requirements.

- 7.6.9 Only government vehicles that are in direct support of the training activities in progress are allowed on the individual ranges. Exceptions will be authorized by the PFT Manager.
- 7.6.10 Ensure students do not remove ammunition, supplies, or other equipment from the range complex.
- 7.6.11 Inspect weapons for live rounds at the clearing barrel prior to entering weapon-cleaning areas. No live ammunition will be permitted in weapon-cleaning areas.
- 7.6.12 Promptly notify the Rangemaster of damaged or malfunctioning equipment.

## **7.7 LFR Maintenance Staff**

LFR Maintenance staff will support training events at the LFR. Under the direction of the Rangemaster, the LFR Maintenance staff will assist with the following:

- Ammunition
- Range supplies
- Training props
- Other duties assigned by Instructors through the Rangemaster.

## **7.8 LFR Safety Specialist**

The LFR Safety Specialist is responsible for providing safety guidance on course conduct and LFR-related procedures and risk analyses. The LFR Safety Specialist is also responsible for making inspections and recommendations to ensure compliance with applicable codes, standards, and regulations.

## **7.9 LFR Users and Visitors**

The LFR is a designated Property Protection Area (for safety considerations, the wearing of badges may not be required during training). As such, all visits to the LFR must be coordinated with the Rangemaster or designee. All visiting personnel must

follow the directions posted at the main gate. All personnel will observe requirements associated with the range flags and flashing beacons (see Section 8.9.4).

- 7.9.1 All visitors will proceed to Building 100 and sign in with the Training Coordinator. The Training Coordinator will locate the PFT sponsor via telephone or radio and coordinate a meeting place. Once business has been completed, the visitor will sign out in Building 100 prior to departure from the LFR.
- 7.9.2 All maintenance activities at the LFR will be coordinated through the Rangemaster. Prior to performing any maintenance work, an NTC work order must be submitted to the Rangemaster for his review and approval (see Appendix E). Maintenance personnel new to the LFR will receive a facility safety briefing and pre-work safety briefing before beginning work.

Upon arrival at the LFR, maintenance personnel will proceed directly to Building 100 and adhere to procedures (as outlined in Section 7.9.1). Radios will remain on Channel A4 while at the LFR. When possible, all work at the LFR will be coordinated with the Rangemaster in advance.

- 7.9.3 During regular work hours, DOE LFR users (MOU or RUA) holders will proceed to Building 100 and adhere to procedures (as outlined in Section 7.9.1). If visitors will be attending training sessions, the sponsoring agency will escort their visitors to Building 100 to complete the sign-in procedure. Upon departure, the visitor will be escorted to Building 100 to sign out.

During non-duty hours, sign-in/sign-out procedures will be completed on the Range Use Log (Appendix C). The sponsoring agency will accept responsibility for the visitor.

- 7.9.4 Delivery personnel will coordinate all deliveries with the Rangemaster or Training Coordinator (as outlined in Section 7.9.1).

## **8.0 OPERATIONS**

### **8.1 Orientation**

New DOE or Non-DOE Instructor: Must receive an LFR orientation prior to the use of the LFR facilities. This orientation will include:

- A. The contents of this SOP and risk analyses applicable to the training to be given. (New instructors will review ESH-GP-531, Risk Analysis.)
- B. User requirements for:
  - 1. Target systems
  - 2. Lighting systems
  - 3. P.A. systems
  - 4. Proper use of limit poles
  - 5. Audiovisual equipment in classrooms
  - 6. Range use log and sign-in/sign-out procedures
  - 7. Emergency procedures

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#### **NON-PROPRIETARY INFORMATION**

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

8. Key issue/turn in
9. Security
10. Use of range flags/beacons
11. LFR access procedures
12. The fact that every participant is a safety officer with Stop Work authority.

C. Scheduling procedures for LFR facilities.

## 8.2 Scheduling and Use of LFR

8.2.1 Non-DOE User: Submit a completed RUA to, and get approval from the NTC Director prior to performing any training activities at the LFR. The RUA will be signed by a senior officer of the requesting agency and will constitute an agreement to follow all requirements found in this SOP. (The RUA form is available on the DOE/NTC website.)

8.2.1.1 The LFR RUA for non-DOE LFR users (agencies) will contain a list of authorized firearms instructors. Only listed instructors will be allowed to conduct training at the LFR. Any additions or deletions to this list must be submitted in writing to the Rangemaster.

8.2.1.2 All non-DOE LFR users (agencies) that sign the RUA will be responsible for complying with the provisions of this SOP.

8.2.1.3 All DOE LFR users (agencies) who have current MOUs with the NTC Director for use of the LFR will be responsible for complying with the provisions of this SOP.

8.2.1.4 NTC will maintain a list of the RUAs for authorized non-DOE users (agencies) and MOUs held by DOE agencies.

8.2.1.5 NTC training courses will have priority for scheduling and use of the LFR facilities. Non-NTC users may schedule use of the range facilities after the approved NTC training schedule has been posted. Priority for scheduling shall be granted for non-NTC DOE users as follows:

1. Sandia National Laboratories
2. Office of Secure Transportation
3. Other DOE users
4. Federal, local law enforcement, military.

8.2.2 LFR User: Designate an instructor who will be responsible for ensuring the practices below.

8.2.2.1 **NO LIVE AMMUNITION WILL BE DISPOSED OF IN LFR TRASH CONTAINERS OR MIXED WITH EXPENDED BRASS.**

8.2.2.2 All weapons will be safe, cleared, and inspected by an instructor upon completion of firing.

8.2.2.3 Weapons will be inspected for live rounds when they are transferred.

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### NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

- 8.2.2.4 Weapons will be inspected by an instructor for live rounds at the clearing barrel prior to entering weapon-cleaning areas, and no live ammunition will be permitted in weapon-cleaning areas.

**NOTE:** If shooters are returning to duty at the completion of training, they may reload their duty weapons under the direction of an instructor prior to departing the LFR.

- 8.2.3 LFR User: Complete the following tasks:

- 8.2.3.1 Obtain permission to use the LFR tactical tower or Live Fire Shoot House (LFSH) from the PFT Manager or Rangemaster. NTC-certified LFSH instructors are authorized to conduct live-fire training in the LFSH. Non-DOE users must have a LFSH instructor certification with their agency and must be approved by their supervisor or commander. LFSH instructors must be listed on the RUA or MOU. (See PFT-SOP-645, Live Fire Shoot House, for detailed information on use of the LFSH.)

- 8.2.3.2 Ensure all hazardous training is covered by a risk analysis.

- 8.2.4 Non-DOE Users: Complete the following tasks:

- 8.2.4.1 Ensure all hazardous training lesson plans are addressed by a risk analysis.

- 8.2.4.2 Submit a training plan that address' safety for review by the Rangemaster and LFR Safety Specialist.

- 8.2.5 Non-NTC LFR User: Complete the Range Use Log (Appendix C) prior to and upon completion of training.

- 8.2.6 LFR User: Approved users will be issued appropriate keys for LFR use during non-normal hours. Users will ensure LFR security is maintained during these hours by securing the main gate upon exiting the LFR site. Also, users will ensure that the main gate is secured once training is completed.

### 8.3 Range Use Log

Non-NTC User: Sign in and out using the Range Use Log (see Appendix C for example page). All requested information must be entered onto the appropriate page. There will be no exceptions to this requirement. During regular duty hours, users also must comply with procedures outlined in Section 7.8.1.

**NOTE:** Repeated failure to complete the Range Use Log fully may be reason to revoke the RUA or MOU for future use of the LFR facilities.

### 8.4 Safety

#### 8.4.1 Safety Standards

- 8.4.1.1 The following DOE standards governing firearms safety at the LFR are mandatory:

- A. 10 CFR 851, Worker Safety and Health Program;

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#### NON-PROPRIETARY INFORMATION

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- B. DOE M 440.1-1A, DOE Explosives Safety Manual
- C. DOE Order 440.1B, Worker Protections for DOE Federal Employees
- D. DOE Order 473.3, Protection Program Operations
- E. HSS Protective Force Firearms Qualification Courses, Section B, Use of Steel Targets

8.4.1.2 The following advisory standards are recognized by DOE:

- A. MIL-HDBK 1027/3B, Range Facilities and Miscellaneous Training Facilities Other Than Buildings;
- B. AR 385-63, Policies and Procedures for Firing Ammunition for Training, Target Practice and Combat;
- C. AF 91-201, Explosives Safety Standards; and
- D. DoD 6055.9-STD, DoD Ammunition and Explosive Safety Standards.

8.4.1.3 Copies of LFR variances from DOE directives will be available for review at the LFR.

## **8.4.2 General Safety Practices**

- 8.4.2.1 LFR User and Instructor: Wash hands thoroughly with cold water and soap before eating, smoking, inserting or removing contact lenses, or leaving the LFR after live fire training.
- 8.4.2.2 Instructor: When shooting during *operational hours*, a second NTC firearms instructor must be present. Notify the Paramedic on duty; if no Paramedic is on duty, notify the PFT Manager or designee. A radio is required while shooting.
- 8.4.2.3 Instructor: When shooting during *non-duty hours*, a second NTC firearms instructor is also required. The second instructor must be certified in first aid and cardiopulmonary resuscitation (CPR) and have a medical trauma kit on the range.
- 8.4.2.4 LFR User: Yellow range flags will be displayed when maintenance activities are being conducted or when the range is closed. Firearms training will be prohibited on ranges flying yellow flags. When all ranges display yellow flags, no firing of any weapon will be allowed at the LFR. Yellow flags may be removed only after the Rangemaster (or designee) inspects the range and authorizes its use.
- 8.4.2.5 LFR User: When firing above the third level of the Tactical Training Tower, ensure the entrance gates are locked and yellow flags are displayed on the adjacent ranges. Upon terminating live-fire activity, notify the Rangemaster so that the adjacent ranges may be reopened.
- 8.4.2.6 LFR User and Instructor: When firing from the guard tower adjacent to the Tactical Training Tower, all personnel must be behind the firing line. No persons will sit in the bleachers in the covered area to the west of the Tactical Training Tower when firing

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### **NON-PROPRIETARY INFORMATION**

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

from the tower is in progress unless the bleachers have been moved back safely behind the firing line.

- 8.4.2.7 Risk compliance review documents (or RCRDs; see Appendix I) are used to document risk analysis compliance for NTC classes conducted at the LFR and ISSTEC. The LFR Safety Specialist maintains the master file for all completed RCRDs.

RCRDs may be completed by the following personnel:

1. LFR Safety Specialist
2. Rangemaster
3. PFT Operations Officer
4. PFT Manager
5. Deputy General Manager
6. General Manager
7. Federal Security Director (or designee)

Once completed, the RCRD will be forwarded (as a copy only) to the PFT Manager for review. All completed forms will be maintained per current Records Inventory Disposition System (RIDS) requirements.

### 8.4.3 Safety Violations

It is NTC policy that all safety violations will be documented and investigated. Failure to comply could result in the suspension or termination of an organization's RUA or MOU or an individual's range access privileges. Students, instructors, and observers will call "CEASE FIRE" at any time to prevent an unsafe act. Training will not resume until the situation has been safely resolved. The Rangemaster will be notified of all safety violations.

- 8.4.3.1 LFR User: Responsible for the safety practices below.

- 8.4.3.1.1 Adhere to established safety policies and procedures at all times. Violation of these rules may result in removal from training activities.

- 8.4.3.1.2 Alcoholic beverages and drugs are prohibited on NTC training facilities. If taking medication, report this fact to the Instructor before participating in training. Students suspected of being under the influence of drugs, alcohol, or medication will be removed from training until resolved.

- 8.4.3.2 Instructor: Determines if a student is fit for training based on the medication taken. A physician may be consulted if necessary. Instructors shall assess each student prior to a day's activities to detect any obvious physical or emotional impairment. Students deemed unfit for duty will be referred to LFR management.

- 8.4.3.3 PFT Manager, Rangemaster, LFR Safety Specialist, and Instructor: Conduct periodic safety audits of facility activities by non-DOE users to ensure compliance with LFR safety rules.

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#### NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

#### 8.4.4 Vehicle Safety

LFR User: Comply with the following vehicle safety policies.

- 8.4.4.1 Operators of vehicles on the LFR must have a valid state motor vehicle license.
- 8.4.4.2 Due to heavy pedestrian use and congested facility access, operate vehicles in accordance with all posted traffic regulations.
- 8.4.4.3 Only government vehicles that are in direct support of the training activities in progress are allowed on the individual ranges. Exceptions will be authorized by the PFT Manager.
- 8.4.4.4 Ensure students being transported at the LFR are seated in the vehicles using seat belts and shoulder restraints. Students and instructors will not be transported in truck beds.
- 8.4.4.5 Specialty vehicles used at LFR (for example, forklifts) will be operated by personnel who have received appropriate training for such vehicles.
- 8.4.4.6 Vehicles used for training purposes will be inspected to ensure the vehicle is in proper condition for its intended use.

#### 8.4.5 Personal Protective Equipment

8.4.5.1 LFR User: Comply with the PPE requirements below.

- 8.4.5.1.1 Wear proper attire during all LFR activities. Hats with brims or helmets will be required when shooting on steel targets closer than 50 yards. Appropriate body armor will be required for all instructors, students, and observers engaged in live fire training in the LFSH.
  - 8.4.5.1.2 Wear eye protection that meets the requirements of ANSI Z87.1-2003, Practice for Occupational and Educational Eye and Face Protection, if within 15 yards of a firing line. Eye protection also will be required in the Armory when machines are operating anywhere weapons are assembled or disassembled for cleaning or maintenance, and in weapon-cleaning areas. Side shields or wraparounds will be required when shooters, instructors, or observers are within 50 yards of steel targets.
  - 8.4.5.1.3 Wear approved hearing protection with a minimum noise reduction rating (NRR) of 26 decibels within 15 yards of a firing line.
- 8.4.5.2 PFT Manager, Rangemaster, LFR Safety Specialist, and Instructors: May prevent the participation of any individual whose attire is considered unsafe for the training.

#### 8.4.6 Weapons

- 8.4.6.1 Privately owned weapons will not be used at the NTC LFR unless approved, in writing, by the DOE/NTC Director (or designee).

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#### NON-PROPRIETARY INFORMATION

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8.4.6.2 As a tenant of Kirtland Air Force Base (KAFB), NTC employees and LFR users must adhere to all applicable regulations pertaining to transportation and carrying of personal weapons.

8.4.6.3 All weapons and ammunition must be stored in an approved location.

8.4.6.4 Concealed weapons are prohibited at NTC facilities.

#### **8.4.7 Exchanging of Firearms**

8.4.7.1 LFR User: Never give a firearm to, or take a firearm from, any person unless directed by an instructor and the weapon is in a safe condition: safety on, ammunition and/or magazine removed, action open, and chambers clear.

8.4.7.2 LFR User: If a student experiences a stoppage on the firing line and the instructor has to intervene to clear the weapon, the instructor may do so as long as the weapon is pointed down range at all times.

8.4.7.3 Instructor: Prior to the exchange, verify the cylinder or action of the firearm is open, the chamber is empty, and the safety is on.

#### **8.4.8 Weapons Loading and Unloading**

8.4.8.1 LFR User: Load and unload all weapons under the supervision of an instructor:

- A. On a range, weapon pointed downrange, and within the range limit poles;
- B. Into an appropriate bullet containment device; or
- C. At a designated area at the LFSH.

8.4.8.2 Instructor: Weapons used for dry fire demonstrations shall be unloaded and verified prior to use.

8.4.8.3 Instructor: All classroom demonstrations must be performed with unloaded or simulated weapons. Before using a firearm for classroom demonstration, clear it into a bullet containment device and ask a student or other instructor to verify that the weapon and magazine to be used have been cleared. Only clearly identifiable inert training rounds may be used for classroom demonstrations.

**NOTE:** Weapons used for classroom demonstrations at the NTC Main Campus will be simulated weapons only (for example, red guns) unless an exception is approved by the NTC Director and PFT Manager.

8.4.8.4 Instructor: Ensure shooters unload, clear, and safe firearms at appropriate times (for example, before breaks, meals, placement in rifle racks, brass call, weapons cleaning, at the end of training, and when leaving a range).

#### **8.4.9 Weapons and Ammunition Malfunctions**

This section provides general guidelines for the disposal of the duds and misfires of diversionary devices. The steps require the use of safety glasses with side shield

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#### **NON-PROPRIETARY INFORMATION**

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

protection (or wraparound safety glasses), hearing protection, gloves, and a ballistic vest for protection.

#### **8.4.9.1 Overview**

8.4.9.1.1 Shooter: When experiencing a weapon malfunction, keep the muzzle pointed downrange and clear the malfunction according to the method approved for the malfunction that occurred. Notify an instructor if you cannot clear a malfunction.

8.4.9.1.2 Instructors: In the event of misfires, hang fires, squib loads, and damaged ammunition, immediately stop training, testing, and evaluation exercises until the problem is corrected. Properly dispose of damaged or dud ammunition.

#### **8.4.9.2 Diversionary Devices (Combined Tactical Systems [CTS] Model 7290)**

1. Allow the device to sit at least 30 minutes.
2. Approach the device wearing the required PPE noted above (8.4.9.1.1).
3. With a long-handled shovel, collect the device and place in the designated sand-filled container.
4. Notify the Rangemaster that the device has been placed in the container for disposal.
5. After the device has been rendered safe, the Rangemaster will take the device to a safe location or range and destroy it by shooting it with a .223 caliber (or larger) bullet to the center of the body.

#### **8.4.9.3 37mm and 40mm Training Practice Rounds**

##### **8.4.9.3.1 Shooter:**

1. Keep the launcher pointed in a safe direction, shout "misfire," and wait 30 seconds to see if the ammunition hang fires.
2. Remove the ammunition from the weapon, and place it on the ground.
3. At the end of the string of fire, notify the instructor who will retrieve ammunition.

##### **8.4.9.3.2 Instructor:**

1. May attempt to fire the ammunition again up to three times. If the ammunition will not fire, put the misfired ammunition into its shipping configuration and clearly print the word "MISFIRED" on the outside of the container. Place the shipping container in the designated sand-filled container.
2. Notify the Rangemaster that the device has been placed in the container for disposal.

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#### **NON-PROPRIETARY INFORMATION**

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- 8.4.9.3.3 Rangemaster: After device has been rendered safe, ensure the repackaged ammunition will be processed for disposal.

#### **8.4.9.4 Rifle and Handgun Ammunition**

##### **8.4.9.4.1 Misfires**

- 8.4.9.4.1.1 Shooter: At the end of the training, retrieve the misfired ammunition and put it in the "Bad Ammo" can.
- 8.4.9.4.1.2 NTC Instructor: If you experience several misfires with the same type of ammunition, notify the Rangemaster.
- 8.4.9.4.1.3 LFR Support Staff: Empty the "Bad Ammo" cans and transfer the contents to the Target Storage Room, Building R-4.

##### **8.4.9.4.2 Squib Load**

**WARNING:** A squib load may have lodged a bullet in the barrel of the weapon. If another bullet is fired into the obstructed barrel, the barrel could fail, causing an injury to the shooter or observer.

- 8.4.9.4.2.1 Shooter: Stop firing immediately, keeping the muzzle pointed down range, and notify an instructor.
- 8.4.9.4.2.2 Instructor: Direct the shooter to maintain his/her position of readiness, with the muzzle pointed at their target for 15 seconds. Direct the shooter to unload the firearm.
- 8.4.9.4.2.3 Instructor: Inspect the ammunition to ensure both the bullet and case are intact. If the ammunition is not intact, the bore will be inspected for obstructions.
- 8.4.9.4.2.4 Armorer: Determine appropriate procedure for removing obstruction from barrel.
- 8.4.9.4.2.5 NTC Instructor: Report squib loads to the Rangemaster.
- 8.4.9.4.2.6 Shooter: Ammunition that is intact will be placed in the yellow "Bad Ammo" cans located on each range.
- 8.4.9.4.2.7 LFR Support Staff: Empty the "Bad Ammo" cans and transfer the contents to the Target Storage Room, Building R-4.

##### **8.4.9.4.3 Damaged Ammunition**

- 8.4.9.4.3.1 Shooter: Turn damaged ammunition over to an instructor or place it in the yellow "Bad Ammo" cans located on each range.
- 8.4.9.4.3.2 LFR Support Staff or Designated Instructor: Will empty the "Bad Ammo" cans and transfer the contents to the Target Storage Room, Building R-4.

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#### **8.4.10 Instructor Equipment**

- 8.4.10.1 Lead Instructor: Ensure instructors have weapons, holsters, radios, and other equipment that are safe and serviceable for use.
- 8.4.10.2 Instructor: Ensure weapons, holsters, radios, and other equipment to be used are in a safe and serviceable condition. Only DOE-owned weapons may be used unless an exception is granted by the DOE/NTC Director (or designee).

#### **8.4.11 Inclement Weather**

When weather conditions may negatively impact training, the training will be canceled or suspended until it is safe to resume. Guidance found in PFT-SOP-652, Inclement Weather Training Restrictions, will be followed.

#### **8.4.12 Smoke Grenades**

- 8.4.12.1 Smoke grenades will be limited to white smoke CTS models 6210 or 8210.
- 8.4.12.2 Smoke grenades will only be deployed outside in bang cans. Deviation must be approved by the Rangemaster.
- 8.4.12.3 Smoke grenades will only be deployed by those who are trained in their use.
- 8.4.12.4 Respiratory protection for the use of smoke grenades will not be required as long as individuals (instructors, students, and visitors) are not immersed in high-density smoke plumes for periods of time beyond 7 minutes. Instructors should make every attempt to minimize exposure to themselves and their students.
- 8.4.12.5 Instructors/students/visitors shall minimize their skin contact with smoke combustion products by wearing uniforms that cover their arms and legs, and by wearing gloves.
- 8.4.12.6 Expended grenades will be handled using gloves. Duds will only be handled by trained, qualified instructors.
- 8.4.12.7 Instructors and visitors shall assure that smoke grenades do not start fires. Combustibles shall be removed from the immediate area and fire extinguishers shall be available in areas where smoke grenades are being deployed.

#### **8.5 LFR Instructor Authorization**

- 8.5.1 New NTC Instructor: Must pass Basic Instructor Training and Firearms Instructor Certification (the minimal requirement), as well as any other applicable NTC course, in order to meet the technical qualifications required for the courses he/she will teach. Must receive an LFR orientation prior to conducting any training activities at the LFR. New instructors must contact the Rangemaster to schedule the LFR orientation.
- 8.5.2 Veteran NTC Instructor: Must maintain all qualifications as specified in NTC-SOP-311, Instructor Certifications and Qualifications.

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## **8.6 Instructor-to-Shooter Ratios**

### **8.6.1 General**

Firearms training instructor-to-shooter ratios will comply with DOE Order 473.3, Protection Program Operations, as follows:

- A. One-to-one for automatic fire training (see 8.6.1 (E) below for exception);
- B. One-to-one for explosive projectile firearm training;
- C. One-to-one for firearm training requiring the shooter to move to multiple firing positions on the firing range;
- D. One-to-one for courses with a fan of fire greater than 10 degrees or movement of the shooter other than straight downrange;
- E. One-to-four for any re-qualification with submachine gun, rifle, or machine gun in automatic mode using controlled bursts of fire;
- F. One-to-four for night fire training and initial firearms training. The one-to-four ratio will be applied to all Basic Security Police Officer Training (BSPOT), Tactical Response Force (TRF), and other initial firearms training involving tactical movement;
- G. One-to-eight for any firearm training in semiautomatic mode; and
- H. One-to-eight for NTC courses of fire involving tactical movement (excludes initial firearms, TRF, and BSPOT trainees).

### **8.6.2 TRF Courses**

In accordance with DOE Order 473.3, a ratio of one instructor to no more than four shooters is permitted during the conduct of TRF courses approved by DOE-HSS and conducted by the NTC or by sites certified to conduct NTC TRF courses. Currently, this applies to the TRF 1 and TRF 2 courses.

### **8.6.3 LFSH Training**

During LFSH training, a "shooter" is defined as any participant who enters the LFSH as part of the exercise and carries a firearm. An individual who meets this definition will be considered a shooter for the instructor-to-shooter ratio purposes until the exercise has been terminated.

For an approved NTC SRT/TRF course conducted in the LFSH, the instructor-to-shooter ratio will be a minimum of one-to-four (see PFT-SOP-645, Live Fire Shoot House).

## **8.7 Presence of Paramedic**

A Paramedic must be present at the LFR during NTC-sponsored live-fire training. An exception to this requirement may be granted on a temporary basis with prior approval

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from the Rangemaster or PFT Manager and notification of the LFR Safety Specialist. Approval will be based on the presence at the active range of an NTC instructor who is currently trained and certified in first aid and CPR and is in possession of a medical trauma kit.

- 8.7.1 Lead Instructor: At least 60 days in advance, provide the Lead Paramedic with the dates, hours, and location for which a Paramedic will be required. Fill out the PFTD Paramedic Request form and send it electronically to the Lead Paramedic (copy the message to the Rangemaster). Notify the Paramedic prior to beginning training and when he or she is no longer required for the class.
- 8.7.2 Rangemaster: Ensure Paramedics are scheduled based on the lead instructor's requirements.
- 8.7.3 Paramedic: Attend all NTC live fire and other hazardous training activities for which he or she has been scheduled.

## 8.8 Designation of Range Safety Officer

When the shooter-to-instructor ratio requires only one instructor on the firing line, the instructor may act as the lead instructor and RSO, if approved by the Rangemaster. When the shooter-to-instructor ratio requires two or more instructors on the firing line, a lead instructor will preside over the firing activities and may act as the RSO, and will not be assigned additional instructional duties or be included in the shooter-to-instructor ratio.

The RSO is the designated and trained instructor responsible for safety during the live fire training (see Appendix G for RSO duties and responsibilities).

## 8.9 Facilities

### 8.9.1 Targets, Frames, and Bullet Traps

- 8.9.1.1 Each range has a target storage area for new targets and frames. Bins will be provided for the storage of used targets, and an area will be designated for the storage of damaged target frames.
- 8.9.1.2 LFR User: Responsible for the tasks below.
  - 8.9.1.2.1 Properly dispose of damaged target frames and replace with new frames.
  - 8.9.1.2.2 Inspect bullet traps before and after each use. Check the armor plate backing for dents, bow or bending, cracks, and holes.
  - 8.9.1.2.3 Prior to and upon completion of scheduled LFSH operations, the user shall conduct a walk-through inspection of the condition of all walls and bullet traps, recording results on the LFSH Inspection Form (see SOP 645). The completed form is to be placed in the form box located at the entrance to the LFSH. Failure to comply could result in the suspension of that organization's RUA or MOU; for NTC training, appropriate administrative action may apply. During non-duty hours, the completed

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inspection forms are to be placed in the form box located at the entrance to the LFSH.

8.9.1.2.4 Ensure that all staples used to hold targets to frames and bullet traps are removed upon completion of training.

8.9.1.2.5 Inspect steel targets for dents, bow, holes, or cracks before each use. (See HSS Protective Force Firearms Qualification Courses, Section B, Use of Steel Targets, for more information.)

8.9.1.2.6 Coordinate with the Rangemaster on any targets placed outside the primary impact berms.

8.9.1.2.7 Notify the Rangemaster if any LFR training apparatus is damaged.

8.9.1.3 LFR Maintenance Staff: Responsible for the tasks below.

8.9.1.3.1 Before transporting steel targets from storage to a range ensure that all bolts and pins are in place and properly tightened.

8.9.1.3.2 Replace plywood facings when required. Remove damaged bullet traps from service. Repair damage to the wooden structure and to Linatex that has been torn, contains holes, or is otherwise damaged.

8.9.1.4 In the event a shooter misses the bullet trap, the procedures below should be followed:

- A. Once discovered, the NTC Rangemaster shall be notified immediately.
- B. If caused by an NTC student while training under an approved NTC lesson plan, that student shall no longer be allowed to participate in LFSH drills. Students will be briefed on this requirement in advance.
- C. If caused by a RUA or MOU holder after the fact, that user shall no longer be authorized access to the LFSH until otherwise authorized by DOE/NTC Training Programs. Costs for damages may be charged to the RUA or MOU holder.
- D. The NTC Rangemaster shall ensure all holes in the interior walls of the LFSH are repaired.
- E. If bullet traps have been hit with non-frangible rifle rounds, the Rangemaster, PFT Manager, and LFR Safety Specialist will be notified immediately.

## 8.9.2 Range Equipment

8.9.2.1 LFR User: Obtain Rangemaster approval to use LFR support equipment such as turning targets or moving targets, the lighting system, and the public address systems.

8.9.2.2 LFR User: Obtain Rangemaster approval to use the following training facilities:

- LFSH

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- LFSH facade
- Tactical training tower

**NOTE:** Use of these facilities may require advance notice due to set-up time requirements.

- 8.9.2.3 Rangemaster or Instructor: Provide training in the safe operation of all LFR support equipment, including PPE requirements.

### 8.9.3 Range Maintenance

LFR User: Adhere to the range maintenance procedures listed below.

- 8.9.3.1 Ensure good housekeeping practices are used on all ranges during training. Pick up expended brass regularly. Secure ammunition boxes, targets, and other materials to prevent them from blowing away or being damaged by wind. Upon completion of training, ensure LFR equipment, ranges, and classrooms are secured.
- 8.9.3.2 Report any item needing repair to the Rangemaster or PFT Manager.
- 8.9.3.3 Direct all firing toward designated targets only. Firing at target frames, signs, barricades, lights, or other range equipment is prohibited.

**NOTE:** Personnel and equipment will not be permitted on berms, except as required to maintain them.

### 8.9.4 Range Flags and Flashing Red Beacon

Before any firearms activities can begin on the range, red flags will be raised. When visibility is limited by weather conditions or darkness, the flashing red beacon must be used. The flag will be secured and/or flashing red beacon will be turned off at the conclusion of firing.

Yellow range flags will be displayed when personnel are down range or the range is closed. Firearms training will be prohibited on ranges flying yellow flags. When all ranges display yellow flags, no firing of any weapon will be allowed on the LFR. Yellow flags may be removed only after the Rangemaster (or designee) inspects the range and authorizes its use.

When weapons are to be fired above the third level of the Tactical Training Tower, the entrance gates to the adjacent ranges must be locked and their yellow flags must be displayed. When live-fire training has concluded, the Rangemaster (or designee) is responsible for reopening the adjacent ranges.

### 8.9.5 Steel Targets

LFR training with steel targets will be conducted following the guidelines in HSS Protective Force Qualification Courses, Section B, Use of Steel Targets.

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Portable steel targets may be used on all ranges if the direction of fire is within the limit poles for the weapons in use and minimum shooter-to-target distances are maintained. A sandbag or other protective barrier will cover the base of the target.

8.9.5.1 LFR User: Responsible for the tasks below.

8.9.5.1.1 Observe the following minimum shooter-to-target distances for steel targets when firing ball ammunition:

- A. 7 yards (21 feet) for pistols and submachine guns
- B. 7 yards (21 feet) for shotguns with buckshot
- C. 50 yards (150 feet) for shotguns with slugs
- D. 50 yards (150 feet) for rifles firing service ammunition, unless prior approval is obtained from the Rangemaster
- E. Shooter-to-steel target distances for frangible ammunition will be established in accordance with the manufacturer's recommendation.

8.9.5.1.2 Obtain approval from the Rangemaster or PFT Manager prior to using steel targets.

8.9.5.1.3 Wear hats with brims or equivalent (for example, helmets) when shooting on steel targets closer than 50 yards.

8.9.5.1.4 Do not place or engage targets outside of the berms without prior approval of the Rangemaster.

8.9.5.1.5 Do not engage targets outside of the berms during fire conditions set at "VERY HIGH" or higher.

8.9.5.2 PFT Manager or Rangemaster (or designee): Must inspect and approve steel targets not owned by the NTC prior to their use.

8.9.5.3 Rangemaster: Must approve the ammunition to be fired on steel targets.

8.9.5.4 Instructor: When conducting courses of fire, ensure that only targets intended for use in the training are in view.

8.9.5.5 Instructor: Inspect NTC steel targets prior to each exercise. Criteria for rejection of a target include:

- Bow or bend in excess of 10 degrees,
- Dimples in excess of 1/16-inch,
- Holes, or
- Cracks.

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**NON-PROPRIETARY INFORMATION**

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### 8.9.6 Brass

- 8.9.6.1 Lead Instructor: Ensure brass is picked up and does not accumulate to become a tripping hazard. At the end of a course, ensure that all ranges that were used are free of brass.
- 8.9.6.2 LFR User: Place brass in designated containers.
- 8.9.6.2.1 Do not mix brass and unexpended ammunition.
- 8.9.6.2.2 **DO NOT PUT LIVE AMMUNITION IN LFR TRASHCANS.**
- 8.9.6.2.3 Do not use hats or pockets to carry brass.
- 8.9.6.3 LFR User: Wash hands with cold water and soap before leaving the LFR.

### 8.9.7 Ammunition

Ammunition and explosive storage, handling, and transportation will be conducted in accordance with DOE M 440.1-1A, DOE Explosives Safety Manual, or AFM 91-201, Explosives Safety Standards (whichever is more stringent) and ESH-GP-549.

Live ammunition will be kept in factory containers until loaded into appropriate ammunition carriers. When ammunition carriers are unloaded, the live ammunition will be returned to the appropriate factory container. Odd ammunition left after this process will be returned to the factory container and marked to indicate the number of rounds remaining.

Ammunition delivered to the ranges will be placed on a bordered table top for dispensing.

**NOTE:** Tracer ammunition may not be fired on any range without prior Rangemaster approval. Armor-piercing ammunition is prohibited on steel targets. The use or storage of Hazard/Class Division 1.1, 1.2, and 1.3 explosives is prohibited at the LFR.

- 8.9.7.1 Rangemaster: Provide ammunition for NTC courses.
- 8.9.7.2 Lead Instructor: Ensure that all ammunition is handled in a safe manner consistent with this SOP and ESH-GP-549. At the end of each day of firing, collect and return all unused ammunition to the appropriate bunker.
- 8.9.7.3 LFR Staff: Two people are required for ammunition handling regardless of check-in or check-out. At least one must be an LFR staff member (PFT Manager, Rangemaster, or LFR Maintenance staff member); the other may be an NTC Instructor. Only LFR staff members are allowed in the bunker.
1. The instructor will make a request to the LFR staff member.
  2. The LFR staff member will retrieve the ammunition and hand it to the Instructor, who loads the vehicle.

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3. The instructor will count to verify the quantity and departs.
  4. The LFR staff member will conduct an inventory of the remaining ammunition. If correct, the LFR staff member will secure and depart from the bunker. If there is a discrepancy, he/she must notify the Rangemaster.
- 8.9.7.4 **Non-NTC User:** Provide the Rangemaster with the caliber, type, weight, and number of all rounds expended during each LFR training session. This information must be recorded in the Range Use Log (see Appendix C).
- 8.9.7.5 **LFR User:** Live ammunition that has been dropped on the ground must be inspected for damage prior to being used during training. Live ammunition found on the ground that is not inspected will be disposed of as unserviceable ammunition. Unserviceable ammunition (Section 8.4.9) will be placed in yellow “Bad Ammo” cans. Live ammunition will not be disposed of in the LFR trash containers.
- 8.9.7.6 **LFR User:** Blank ammunition or dye-marking cartridges (DMC) may only be used at the LFR on a case-by-case basis with prior approval from the DOE/NTC Director (or designee). This decision may be based on recommendations from the PFT Manager, Rangemaster, or LFR Safety Specialist.

## 8.10 Specific Range Descriptions and Authorized Ammunition

- A. Only DOE ammunition will be used with DOE weapons. When privately owned weapons have been approved by the DOE/NTC Director (see Section 8.4.6.1), users will provide their own ammunition.
- B. With the exception below, all combinations of small arms and ammunition (including 37mm and 40mm grenade launcher training and practice rounds) may be fired on the LFR.

**NOTE:** Tracer ammunition may not be fired on any range without prior Rangemaster approval.

- C. A ricochet hazard exists because range floors and berms may have rocks or other objects of varying sizes embedded in them. Even a very small object has the potential to result in a ricochet.
- D. For the simultaneous use of ranges at the LFR, the firearms instructors must coordinate by radio prior to allowing personnel down range and must coordinate with instructors using adjacent ranges. The following table shows the procedures for simultaneous range use.

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### NON-PROPRIETARY INFORMATION

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### Ranges Authorized for Simultaneous Firing

Range	Authorized for Simultaneous Firing
Shotgun	All ranges except MP Range
Pistol 1	All ranges
Pistol 2	All ranges
Rifle 1	All ranges
Rifle 2	All ranges except when firing from the Tactical Training Tower, third floor or higher, and the Fire Tower.
R&D	Includes the LFSH, 12-Position Range, and Vehicle Assault Range. Simultaneous use of two (or more) of the three areas on the R&D Range is <b>not permitted</b> . No one is permitted on the elevated observation control platform in the Live Fire Shoot House when either the 12-Position Range or Vehicle Assault Range is HOT.  <u>NOTE:</u> Concurrent training may be permitted when compensatory measures (for example, one or a combination of adequate ballistic protection, administrative controls, or tactical controls) are emplaced between any of the three ranges on the R&D Range, and with prior approval by the Rangemaster and LFR Safety Specialist.
MP	All ranges except Shotgun Range

#### 8.10.1 Multi-Purpose (MP) Range

The MP Range is a 100-yard (300-foot) range with 24 firing/target positions.

- A. Handgun caliber ammunition
- B. Submachine gun firing handgun caliber ammunition
- C. Shotgun ammunition
- D. Rifle ammunition up to and including 7.62x51 NATO/.308 Winchester (5.56mm, 7.62mm, .308 cal.)
- E. Approved diversionary devices with the Rangemaster's approval.

**NOTE:** No machine gun firing allowed unless approved by the Rangemaster.

#### 8.10.2 Shotgun Range

The Shotgun Range has two firing positions. Only shotguns with birdshot may be fired in the shooting area.

**NOTE:** The MP Range must be shut down when the Shotgun Range is in operation. The Shotgun Range may only be used with Rangemaster's approval.

#### 8.10.3 Pistol Range 1

Pistol Range 1 is a 50-yard (150-foot) range with 22 firing/target positions.

- A. Handgun caliber ammunition
- B. Submachine gun firing handgun caliber ammunition
- C. Shotgun ammunition

**NOTE:** Rifle ammunition may not be fired on Pistol Range 1.

#### NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

#### 8.10.4 Pistol Range 2

Pistol Range 2 is a 50-yard (150-foot) range with 22 firing/target positions.

- A. Handgun caliber ammunition
- B. Submachine gun firing handgun caliber ammunition
- C. Shotgun ammunition
- D. Rifle ammunition up to and including 7.62x51 NATO/.308 Winchester (5.56mm, 7.62mm, .308 caliber)
- E. Action Target System-Handgun ammunition only. Submachine guns may be used with handgun ammunition only.
- F. Approved diversionary devices with the Rangemaster's approval.

**NOTE:** No machine gun firing will be allowed unless approved by the Rangemaster. The largest round to be used at the LFR is 7.62x51 NATO/.308 Winchester. Any larger round THAT DOES NOT EXCEED the maximum range of 7.62x51 NATO/.308 Winchester MAY NOT be used unless approved by the Rangemaster.

#### 8.10.5 Rifle Range 1

Rifle Range 1 is a 300-yard (900-foot) range with 20 firing/target positions.

- A. Handgun caliber ammunition
- B. Submachine gun firing handgun caliber ammunition
- C. Shotgun ammunition
- D. Rifle ammunition up to and including 7.62x51 NATO/.308 Winchester (5.56mm, 7.62mm, .308 cal.)
- E. 37mm and 40mm training and practice rounds with Rangemaster approval
- F. Approved diversionary devices with Rangemaster approval

**NOTE:** No machine gun firing allowed unless approved by the Rangemaster.

#### 8.10.6 Rifle Range 2

Rifle Range 2 is a 300-yard (900-foot) natural terrain range with multiple firing/target positions.

- A. Handgun caliber ammunition
- B. Submachine gun firing handgun caliber ammunition
- C. Shotgun ammunition
- D. Rifle ammunition up to and including 7.62x51 NATO/.308 Winchester (5.56mm, 7.62mm, .308 cal.)
- E. 37mm and 40mm training and practice rounds
- F. Approved diversionary devices with Rangemaster approval.

#### 8.10.7 R&D Range

This range includes the Live Fire Shoot House, 12-Position Range, and Vehicle Assault Range. Simultaneous use of two (or more) of the three areas on the R&D Range is **not permitted**. No one is permitted on the overhead control and observation platform in the

Live Fire Shoot House when either the 12-Position Range or Vehicle Assault Range is HOT. However, concurrent training may be permitted when compensatory measures (that is, one or a combination of adequate ballistic protection, administrative controls, or tactical controls) are emplaced between any of the three ranges on the R&D Range, and with prior approval by the Rangemaster and LFR Safety Specialist.

#### 8.10.7.1 12-Position Range

The 12-Position Range is a 100-yard (300-foot) range with 12 firing/target positions.

- A. Handgun ammunition
- B. Rifle ammunition up to and including 5.56x45 NATO/.223 Remington (5.56mm, 7.62mm, .308 cal.)
- C. Shotgun ammunition
- D. Submachine gun firing handgun caliber ammunition
- E. Approved diversionary devices with the Rangemaster's approval.

**NOTE:** No machine gun firing is allowed unless approved by the Rangemaster.

#### 8.10.7.2 LFSH

- A. Handgun-caliber and 5.56mm caliber frangible non-lead rifle ammunition.
- B. Rifle firing approved frangible (non-lead) 5.56mm ammunition (No other rifle ammunition permitted.)
- C. Submachine gun with frangible (non-lead only) handgun caliber ammunition
- D. Shotgun firing breaching ammunition
- E. Approved diversionary devices
- F. 37mm and 40mm training and practice rounds with Rangemaster approval

**NOTE:** All training and practice rounds must be used in a manner that will allow their impact to be in the direction of the berm.

- G. Dye-marking cartridges may be used with approval of the DOE/NTC Director (or designee).
- H. Prohibited ammunition (see Appendix F).

#### 8.10.7.3 Vehicle Assault Range

All calibers of frangible and ball pistol ammunition and up to 5.56x45 NATO/.223 Remington rifle ammunition may be fired on the Vehicle Assault Range.

### 8.11 Pyrotechnics and Explosives

PFT Manager, Rangemaster, and LFR Safety Specialist: Responsible for the following tasks:

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#### NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

- 8.11.1 Approve all pyrotechnics and explosives to be used on the NTC LFR.
- 8.11.2 Approve deployment of diversionary devices and approved smoke grenades in authorized areas. For example, on Rifle Range 2, diversionary devices and smoke may only be deployed in designated deployment boxes, bang buckets, or areas where ground preparation has been performed.

## 8.12 Other Range Facilities

### 8.12.1 Classrooms

**NOTE #1: LOADED WEAPONS ARE NOT ALLOWED IN CLASSROOMS.**

**NOTE #2: LIVE AMMUNITION IS PROHIBITED IN CLASSROOMS DURING FIREARMS TRAINING.**

- 8.12.1.1 LFR User: Schedule use of the LFR classrooms through the NTC website using the electronic scheduling form.
- 8.12.1.2 Lead Instructor: Ensure all audiovisual equipment is used in an appropriate manner.
- 8.12.1.3 Lead Instructor: Ensure classrooms are left clean and straightened. Empty all trash and put in new liners. Sweep and mop floors as needed. Remove all training aids, and secure upon completion of training. Notify the Rangemaster of any discrepancies.

### 8.12.2 Weapon-Cleaning Areas

**NOTE: ABSOLUTELY NO LIVE AMMUNITION WILL BE ALLOWED IN THE WEAPON-CLEANING AREA OR ROOMS.**

- 8.12.2.1 Lead Instructor: Responsible for the tasks below.
  - 8.12.2.1.1 Inspect all student weapons at the clearing barrel before entering the weapon-cleaning areas or rooms.
  - 8.12.2.1.2 Ensure the students are familiar with weapon-cleaning procedures and use of the facility.
  - 8.12.2.1.3 Inspect the cleaning room for cleanliness, secure cleaning supplies, and close the cleaning room at the end of each use.
- 8.12.2.2 DOE and NTC LFR User: Responsible for the tasks below.
  - 8.12.2.2.1 Dispose of patches, towels, and other cleaning materials used for weapons cleaning. Use the appropriately marked containers that are provided for the collection of the weapons cleaning residue. Do not dispose of liquids in these containers.
  - 8.12.2.2.2 Wear eye protection in the cleaning rooms when cleaning weapons using solvent and/or compressed air.

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**NON-PROPRIETARY INFORMATION**

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

- 8.12.2.2.3 Wear protective gloves and/or barrier cream, which will be provided, for hand protection.

**NOTE:** Compressed air used for cleaning purposes will be regulated at 30 psi maximum.

## 8.13 Range Fans of Fire

### 8.13.1 Overview

- 8.13.1.1 Fans of fire have been established for each range to ensure that any projectiles leaving the range impact in an approved Surface Danger Zone (SDZ) established for the LFR according to AR 385-63. **These fans of fire are mandatory.** Any live fire will be in a direction such that, if the bullet misses a berm or bullet containment device, it will land within a designated SDZ.
- 8.13.1.2 Limit of fire markers (limit poles) must be placed to denote right and left limits of fire. The maximum horizontal angle of bullet travel is determined by observing the pole alignment from the firing point. The horizontal angle from range centerline must not exceed the angle created by the poles (see Figures 1, 2, and 3). Red limit poles will be used to control all rifle caliber fire. Green limit poles will be used to control pistol caliber and shotgun fire.

### 8.13.2 Moving Targets

LFR User: Responsible for the tasks below.

- 8.13.2.1 All training using moving targets will be conducted in a location and in a manner that is compatible with all established fans of fire, using applicable limit poles for the specific caliber.
- 8.13.2.2 Obtain approval from the PFT Manager, Rangemaster, and LFR Safety Specialist for training to be conducted outside the parameters of this procedure. All requests will be submitted to the NTC Director through the PFT Manager or the NTC General Manager.

### 8.13.3 Target Vehicles

8.13.3.1 LFR User: Responsible for the tasks below.

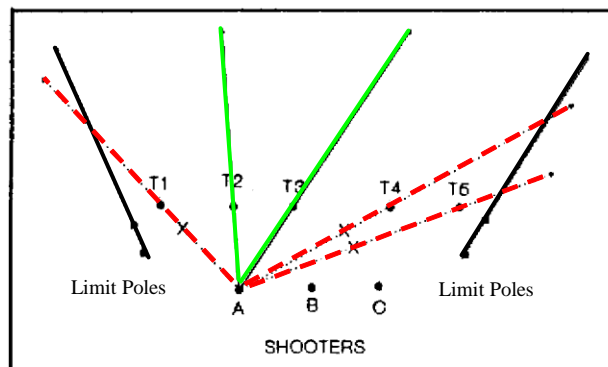
- 8.13.3.1.1 Only vehicles that have had the battery, gas tank and all fluids removed may be used as targets on the LFR complex.
- 8.13.3.1.2 Training using target vehicles will be conducted in a location and in a manner that is compatible with established fans of fire, using applicable limit poles for the specific caliber. When conducting live fire vehicle training, target placement within the vehicle will provide as close to a 90-degree firing angle as possible.

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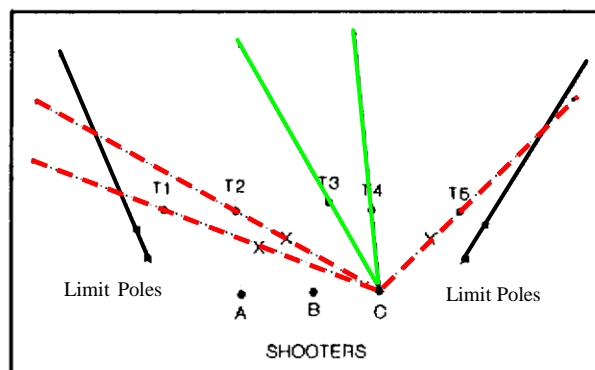
#### NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

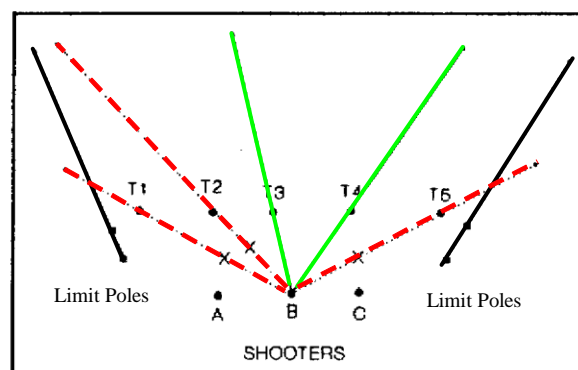




**Figure 1.** Shooter A may engage targets 2 and 3, but not 1, 4, or 5.



**Figure 2.** Shooter C may engage targets 3 and 4, but not 1, 2, or 5.



**Figure 3.** Shooter B may engage targets 3 and 4, but not 1, 2, or 5.

#### NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

8.13.3.1.3 When conducting live-fire vehicle assault training, long-sleeved shirts, gloves, body armor, and approved eye and ear protection will be required for instructors, shooters, and observers.

8.13.3.2 Instructor: When conducting bullet penetration demonstrations on vehicles, ensure appropriate shooter-to-target distances are established (see Paragraph 8.6.1).

**NOTE:** Instructors are solely responsible for conducting bullet penetration demonstrations.

8.13.3.2.1 Conduct bullet penetration demonstrations at distances no closer than 7 yards.

8.13.3.2.2 During demonstrations, do not permit shotgun slugs and/or buck shot to strike target vehicle wheels.

8.13.3.2.3 Rifles, handguns, and shotguns (buck shot and/or slugs) may be used for car body, glass, and tire penetration demonstrations.

8.13.3.2.4 Do not perform shooting through glass on ranges unless approved by the PFT Manager and Rangemaster. Ensure shattered glass is policed up upon completion of firing.

8.13.3.2.5 Perform ricochet demonstrations only with the approval of the PFT Manager and Rangemaster.

8.13.3.2.6 Ensure that target vehicle placement for bullet penetration demonstrations does not result in damage to existing target systems that may be behind target vehicles.

## **8.14 Maintenance**

### **8.14.1 Training Support**

8.14.1.1 Rangemaster: Coordinate any range or facility modifications required for courses.

8.14.1.2 PFT Manager and LFR Safety Specialist: Approve construction of, or modification to, range facilities.

### **8.14.2 Maintenance and Inspections**

LFR Maintenance Staff: Responsible for the tasks below.

8.14.2.1 Empty brass collection containers from all ranges daily, and place collected brass in the approved storage area.

8.14.2.2 Inspect all fences, gates, doors, and locks weekly to ensure proper operation.

8.14.2.3 Inspect all range facilities and support equipment weekly, and report damage or deficiencies to the Rangemaster.

8.14.2.4 Inspect the equipment storage bunkers located on each range weekly to ensure sufficient inventories of eye and ear protection are available.

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#### **NON-PROPRIETARY INFORMATION**

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

- 8.14.2.5 Perform a pre-operational check of range maintenance vehicles to ensure safe operation. If a range maintenance vehicle is found to be in need of repair or in an unsafe condition, the vehicle will be taken out of service until it has been repaired.
- 8.14.2.6 Ensure the annual inspection of the overhead crane in Building 102, LFR Maintenance, is performed in a timely manner by a qualified employee.
- 8.14.2.7 LFR staff will ensure a pre-operation inspection of the forklift is performed prior to its use. Pre-operational checklists may be picked up in Building 102. Operators will return completed checklists to Building 102.

## 8.15 Emergency Procedures

- 8.15.1 In the event of an emergency at the LFR, follow appropriate emergency procedures outlined in NTC-PM-504, NTC Emergency Management Plan. A summary of emergency actions is posted at the emergency telephone located at each range. The LFR Safety Specialist and Rangemaster will schedule an annual emergency exercise at the LFR to ensure emergency response procedures by LFR personnel and supporting agencies are effective.
- 8.15.2 Report emergencies at the LFR by dialing **911** (SNL Emergency Operations Center).

**NOTE:** If using a cell phone dial **844-0911**. However, cell phone coverage at the LFR is uncertain, so their use is not recommended. An additional means of reaching the SNL EOC is radio channel C-1.

When making the call, individuals should be prepared to state:

- The nature of the illness or injury (for example, fire or medical),
- The building number or location where emergency responders are needed, and
- Their name and the phone number from where they are calling.

The following NTC staff should also be informed of emergency situations as appropriate and as soon as possible:

Protective Force Training Manager	845-5170 (ext. 621)
Rangemaster	845-5170 (ext. 605)
LFR Safety Specialist	845-5170 (ext. 153 or 155)
Facilities Operations/ES&H Manager	845-5170 (ext. 154) or 505-238-0483

**NOTE:** Notification procedures, as outlined in Appendix B, must be adhered to by all staff.

## 8.16 Fire Conditions and Restrictions

Weather conditions involving long-term periods of dryness can adversely affect firearms training due to increased fire hazard in Coyote Canyon. This includes the LFR and ISSTEC areas.

LFR Safety Specialist: Post the appropriate Fire Conditions Warning Signs and determine when conditions limit certain types of training. This determination will be

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### NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

made in conjunction with U.S. Forest Service criteria (see Appendix H for such restrictions).

### **8.17 Risk Analyses**

All LFR users will adhere to the risk controls identified in the LFR Safety Assessment Report (NTC-PM-508) and applicable risk analyses.

## **9.0 APPENDICES**

- A – Sample Range Use Agreement
- B – Actions to Take in Response to a Significant Event
- C – Sample Range Use Log
- D – Sample Range Sign In/Out Log
- E – LFR Maintenance Operations
- F – Prohibited Ammunition in Live Fire Shoot House
- G – Range Safety Officer
- H – U.S. Forest Service Fire Condition Warning Signs and Restrictions
- I – NTC Presentation and Work Process Risk Analysis Compliance Review

## **APPENDIX A – SAMPLE RANGE USE AGREEMENT**

Refer to the Sample Range Use Agreement (RUA) provided on the NTC website (<http://ntc.doe.gov/>).

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### **NON-PROPRIETARY INFORMATION**

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

## **APPENDIX B – ACTIONS TO TAKE IN RESPONSE TO A SIGNIFICANT EVENT**

### **B.1 DEFINITIONS**

**MALFUNCTION / FAILURE.** For reporting purposes, an event that results in personal injury or damage to property or firearms.

**NEAR MISS.** An incident that does not result in personal injury, property damage, or schedule delay but has the potential to do so.

**NONSIGNIFICANT EVENT.** Minor first aid injuries / conditions not involving unusual event or near miss. Documentation consists of submittal of supervisor's incident report and paramedic report (if generated) and notification of Rangemaster, LFR Safety Specialist, and PFT Manager.

**SIGNIFICANT EVENT.** An unplanned or unintended event that occurs at the NTC LFR. Significant events include unauthorized discharges, weapons malfunctions or failures (see above definition), accidents, injuries greater than first aid, unusual incidents, and near misses. Outside users will notify Rangemaster as soon as possible.

**UNAUTHORIZED DISCHARGE (UD).** The discharge of a firearm under circumstances other than (a) during firearms training with the firearm properly pointed downrange (or toward a target), or (b) the intentional firing at hostile parties when deadly force is authorized.

### **B.2 POLICIES**

Individuals involved in a significant event should immediately take appropriate emergency actions to preserve the safety and well-being of the individuals and equipment involved in the event. Following these actions, NTC employees are responsible for reporting all details associated with the significant event and complying with all investigative measures.

An investigative team will be comprised of, at a minimum, one member of the ES&H staff, the PFT Department, and the Armory, as applicable.

### **B.3 OPERATIONS**

#### **B.3.1 Reporting the Event**

In the event of a significant event, NTC employees are responsible for reporting the event and complying with the NTC reporting procedures. All other users of the NTC LFR are responsible for reporting the event to the LFR staff and complying with this appendix and their specific agency reporting policies.

1. Personnel involved in or witnessing a significant event will immediately report the event to a supervisor and/or range safety officer.
2. The reporting process will include notification through the chain-of-command, as appropriate, starting with the individual reporting the event:

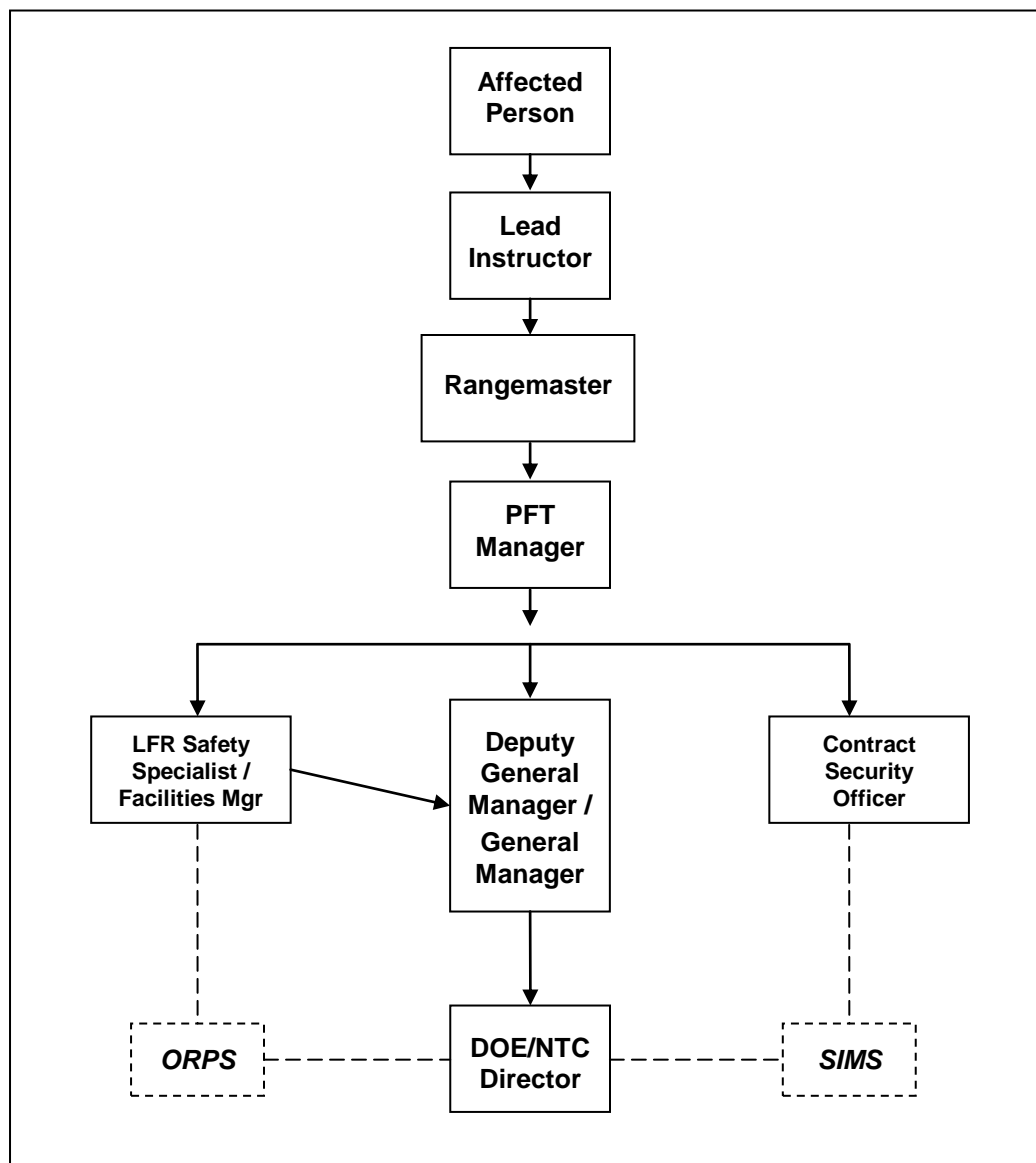
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#### **NON-PROPRIETARY INFORMATION**

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

- Lead Instructor
- Rangemaster
- PFT Manager
- LFR Safety Specialist or Facilities Operations/ES&H Manager
- Contract Security Officer
- NTC Deputy General Manager
- NTC General Manager
- DOE/NTC Director

Each individual is responsible for immediately notifying the next entity in the chain-of-command, as shown in the figure.



**NON-PROPRIETARY INFORMATION**

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

3. In accordance with DOE directives, the ES&H staff will complete an occurrence report and submit it to the Occurrence Reporting Processing System (ORPS), and the Contract Security Manager will complete an occurrence report and submit it to the Security Incident Management System (SIMS). The LFR Safety Specialist and Contract Security Manager will obtain signatures from the DOE Director on the reports prior to submitting them to ORPS and SIMS, as necessary.

### **B.3.2 Investigating the Event**

#### **B.3.2.1 General Procedures**

1. Lead Instructor:

- (a) Secure the incident scene as an “accident scene” in order to preserve evidence.
- (b) Obtain written statements from all involved parties (instructors, students, and observers) as soon as practicable. Interviews will be accurately documented in detail.
- (c) Collect evidence (including but not limited to):
  - Photographs, if possible;
  - Accurate, measured diagrams of the scene showing locations of all instructors, students, and observers; target locations; direction of fire; and bullet(s) and fragment(s) impact(s) locations;
  - Ammunition details, including lot number, firearm type (including features and serial number), and firearm condition immediately after a UD; and
  - Environmental conditions such as temperature, wind speed and direction, and lighting conditions.
- (d) For incidents involving firearms, secure weapons for inspection and function check (if appropriate).
- (e) Complete supervisor incident report, including photographs / drawings, statements, and evidence.
- (f) Perform testing to duplicate events only with concurrence of the cognizant contractor and DOE officials, under written test plans, and in a manner to preserve evidence.

2. Cognizant DOE Authority (NTC Director): Must authorize:

- The release of the incident scene;
- The release of firearms, related equipment, and other evidence for use;
- Affected personnel to return to duty; and
- Resumption of the suspended activity.

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**NON-PROPRIETARY INFORMATION**

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.



**B.3.2.2 UD-Specific Procedures**

1. Lead Instructor: In addition to the above requirements, follow the UD-specific procedures below:
  - (a) Remove the individual firing the UD and other involved parties from training or immediately relieve them of duty to allow the incident investigation to commence.
  - (b) Immediately cease the training, qualification, or equivalent activities in which the UD occurred in order to allow the incident investigation to commence.
  - (c) Clear the firearm(s) that fired and make them safe under the observation of a firearms instructor.
2. Firearms Instructor: Record the condition of the firearm(s) and any comments on any observed firearm-related topics (for example, malfunctions).
3. Lead Instructor:
  - (a) Immediately take the firearm(s) that fired the UD and any involved equipment (such as holsters, tactical bags, body armor, equipment vests, etc.) into custody as evidence and control it to preserve and record the chain of custody.
  - (b) Provide the firearm(s) involved in the UD to an NTC Gunsmith for a function check.
4. Gunsmith: Document the function check findings.
5. Cognizant DOE Authority (NTC Director): Must authorize:
  - The release of the incident scene
  - The release of firearms, related equipment, and other evidence for use
  - Personnel to return to duty
  - Resumption of the activity

## APPENDIX C – SAMPLE RANGE USE LOG

Date	Start Time	Finish Time	Organization	Person in Charge	# of People	Ammo Type Used											Weight In Grains	Rounds Fired
						.357 sig	9mm	40 S&W	45 ACP	10mm	.223/5.56	5.56 bltd	7.62/308	7.62 bltd	40mm TP	Shotgun		

## NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

## APPENDIX D – SAMPLE RANGE SIGN-IN/SIGN-OUT LOG

Date	Time In	Time Out	Organization	Name	Personnel Information		Facilities Being Used/ Reason For Use
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
					Lead Instructor		
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					Medic**		
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
				<b>** Medical personnel must be a Paramedic or CPR/first aid and gunshot-certified.</b>			

## NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

## APPENDIX E – LFR MAINTENANCE OPERATIONS

The Live Fire Range (LFR) Maintenance Staff has been authorized to perform routine preventive and operational maintenance activities at the LFR. These routine LFR maintenance activities are essential for the safe and efficient management of U.S. Department of Energy (DOE) Security training programs at the LFR.

Routine maintenance activities are those recurring tasks that are required to maintain an operational range facility and provide appropriate equipment and training materials to meet NTC course objectives. The hazards associated with these maintenance activities have been identified and are within an acceptable risk level when performed correctly by qualified personnel. Examples of routine maintenance operations include but are not limited to

- Fabrication, storage, distribution, and disposal of wooden target frames
- Fabrication, storage, inspection, maintenance, and disposal of steel targets
- Fabrication, distribution, inspection, maintenance, and cleaning of bullet traps
- Maintenance of range equipment, including electrical and mechanical systems
- Maintenance of overall range condition, including target and firing lines, impact and side berms, and access controls
- Support courses in progress, as required.

ESH-GP-536, Shop Operations and General Maintenance, outlines general safety requirements that must be implemented during routine maintenance activities. Routine maintenance activities performed at the LFR may involve:

- Welding and cutting operations
- Machining
- Using woodworking machines
- Using portable hand and power tools
- Using material handling equipment
- Operating overhead cranes
- Operating motor vehicles
- Electrical safety.

Non-routine maintenance activities (including LFR operations) will require completion of an NTC work order, and will be conducted in compliance with procedures outlined in Section 8.9.4 of this procedure. Procurement procedures will require safety review and input for contracted maintenance and construction services. Additionally, non-routine maintenance activities will require completion of a maintenance work order. NTC maintenance and safety staff will meet weekly to discuss maintenance activities and ensure early identification of hazards during work planning.

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### NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for review in July 2014.

## APPENDIX F – PROHIBITED AMMUNITION IN LIVE FIRE SHOOT HOUSE

Certain ammunition may not be utilized while training in the NTC's Live Fire Shoot House due to the potential for damage, injury, and/or contamination during training, wear on service weapons, or damage to target systems. This appendix describes such prohibited ammunition.

### F.1 SMALL ARMS AMMUNITION (PISTOL AND RIFLE CALIBER)

Only ammunition approved by the Rangemaster may be used within the LFSH. The following ammunition is approved by the Rangemaster: frangible, non-lead handgun ammunition. 5.56x45 NATO/.223 Remington frangible, non-lead rifle ammunition. In addition, lead-free shotgun-breaching rounds, and non-fragmenting diversionary devices may be used. Non-DOE Users must specify when requesting use of the LFSH what type of ammunition will be used. Rangemaster will approve or disapprove the request based upon ammunition listed at the time request is submitted. Dye-marking cartridges may be used on a case-by-case basis if approved by the DOE/NTC Director.

Not Allowed: Any lead, hollow point, semi-wadcutter, non-approved pistol and/or rifle caliber, or non-frangible ammunition and fragmenting diversionary devices.

### F.2 DIVERSIONARY DEVICES

Full-charge (operational) and reduced charge diversionary devices may be used in the Live Fire Shoot House.

Full-charge diversionary devices **MAY NOT** be employed in rooms or hallways that are occupied by personnel.

## APPENDIX G – RANGE SAFETY OFFICER

### G.1 DEFINITION

RANGE SAFETY OFFICER (RSO). The designated and specifically trained individual that is responsible for safety at a live fire range (LFR) (DOE O 473.3).

### G.2 REQUIREMENTS

The RSO for the LFR at the Department of Energy National Training Center (DOE/NTC) will be the lead instructor with overall responsibility for range safety. This will include monitoring the safety performance of shooters as well as the overall safety of the firing range. The lead instructor/RSO will be present during all range firearms training, including qualifications.

### G.3 RESPONSIBILITIES

1. Be familiar with the “Four General Firearms Safety Rules” and the “Fourteen Specific Safety Rules.”
2. Be knowledgeable of NTC standard operating procedures.
3. Be knowledgeable of the range limit poles at the DOE/NTC LFR.
4. Be knowledgeable of the types of weapons and targets that may be used on specific ranges.
5. Be knowledgeable of instructor-to-shooter ratios for DOE/NTC live fire activities.
6. Possess a hand-held radio capable of communicating with the paramedic on duty, LFR staff, and the SNL Emergency Operations Center (on Channel C-1).
7. Ensure a qualified firearms instructor gives a lesson-specific safety briefing to all students and observers prior to conducting any training/qualification activity.
8. Visually inspect the designated range for any safety hazards that may exist (for example, tripping or falling hazards).
9. Ensure a red flag is flying during daylight training and the red beacon is on during night training.
10. Report emergencies at the LFR by dialing **911**. The following NTC staff should also be informed of emergency situations as appropriate and as soon as possible.

Protective Force Training Manager	845-5170 (ext. 621)
Rangemaster	845-5170 (ext. 605)
LFR Safety Specialist	845-5170 (ext. 153 or 155)
Facilities Operations/ES&H Manager	845-5170 (ext. 154) or 505-238-0483

Report after-hour emergencies by dialing **911**.

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#### NON-PROPRIETARY INFORMATION

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11. Ensure a paramedic is on duty for NTC training. If training is being conducted without the presence of a paramedic, an NTC LFR instructor must be present who is currently trained/certified in first aid and cardiopulmonary resuscitation and has a medical trauma kit in his/her possession. Prior approval from the Rangemaster or PFT Manager and notification of the LFR Safety Specialist is required.
12. Ensure that all individuals, including observers, have required personal protective equipment.
13. The lead instructor/RSO will ensure training is suspended and all personnel are removed from the firing line to a designated safe area during electrical storms or when lightning is present. (See PFT-SOP-652, Inclement Weather Training Restrictions.)
14. The lead instructor/RSO will make the determination when to stop firing due to adverse weather conditions (see PFT-SOP-652).
15. During extreme heat conditions, ensure water is available and personnel involved in firearms training are given a break at least every 60 minutes. In cold weather, ensure regular breaks are taken in heated areas.
16. Ensure all observers are located in a designated safe area.
17. When the training is complete, ensure each firearm is in a safe condition (safety on, ammunition/magazine removed, action open, and chambers clear), and is physically examined by the shooter and the lead instructor/RSO or qualified firearms instructor before leaving the LFR. (Shooters may reload the firearm at a clearing barrel if returning directly to duty.)
18. If shooters are to use the weapons cleaning room, the lead instructor/RSO or an instructor will ensure weapons are inspected at the clearing barrel prior to entering the cleaning room.

For night firing:

19. Ensure a rotating red light is visible while firing is in process.
20. Conduct a visual inspection of the target area with a flashlight and an audible check to ensure no individuals are in the impact area prior to commencement of night firing.

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**NON-PROPRIETARY INFORMATION**

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## APPENDIX H – U.S. FOREST SERVICE FIRE CONDITION WARNING SIGNS AND RESTRICTIONS

Sandia Ranger District of the U.S. Forestry Service recommends that Kirtland Air Force Base (KAFB), including the withdrawn area, be one level above the Cibola National Forest Fire Danger Rating. ***KAFB will never be at a low Fire Danger Rating.***

Ascertain the current fire and weather conditions prior to conducting training activities in Coyote Canyon and, in particular, note if a “Red Flag Warning” is in effect for Albuquerque through the National Oceanic and Atmospheric Administration (NOAA) website (<http://fire.boi.noaa.gov/>). Activities outside the confines of the Live Fire Range (LFR) and ISSTEC facilities will be terminated or suspended if a “Red Flag Warning” condition is in effect.

The Fire Danger Classes listed below provide specific guidance relative to conditions and restrictions.

### MODERATE OR HIGH

Restricts fires (open flame) and smoking to developed test sites. Use of pyrotechnics or blank ammunition will be permitted on the developed test sites in approved sandbagged/pitted areas and on the black-top of “No Sweat Boulevard”. Vehicles are restricted to paved or dirt roads or low-grass areas.



MODERATE



HIGH

Additional guidance:

- Normal training activities involving the use of small arms ammunition within the NTC LFR are permitted. No tracer ammunition is allowed.
- Use of flares is prohibited.
- Use of pyrotechnic diversionary devices is permitted within the Live Fire Shoot House and on developed exercise sites in approved sandbagged/pitted areas and on established roadways (paved, gravel, areas cleared of vegetation), to include previously disturbed or graded mineral soil areas.
- Only designated instructors or senior controllers will deploy pyrotechnics in the above-mentioned approved areas under this fire danger classification.
- Fire extinguishers and water pack extinguishers will be readily available.
- Small unit infantry-type tactical activities utilizing approved engagement simulation systems (ESS), Multiple Integrated Laser Engagement System (MILES), and/or dye-marking cartridges (DMC) are permitted.
- Off-road vehicle traffic should be minimized and limited to established roads and paths or low-grass areas.
- Only vehicles with factory installed spark arresters and exhaust systems are authorized for use.

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#### NON-PROPRIETARY INFORMATION

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**VERY HIGH**

Restricts fires (open flames), smoking, and pyrotechnics. Smoking is permitted in non-government vehicles or approved smoking areas only. Use of pyrotechnics is permitted only in approved sandbagged/pitted areas; vehicles are restricted to paved or graded roads. "Burn Site" testing that emits embers with sufficient thermal capacity to start a fire outside of the cleared facility area is not allowed. Welding operations are restricted to areas cleared of weeds and other materials capable of burning to 35 feet.

**VERY HIGH**

## Additional guidance:

- Normal training activities involving the use of small arms ammunition within the NTC LFR are permitted. Rounds must be contained within the confines of the range berms. No tracer ammunition is allowed.
- Use of flares is prohibited.
- Use of pyrotechnic diversionary devices are permitted within the Live Fire Shoot House and, upon approval, developed exercise sites in approved sandbagged/pitted areas and on established roadways (paved, gravel, areas cleared of vegetation), to include previously disturbed/graded mineral soil areas.
- Only designated instructors or senior controllers will deploy pyrotechnics in the above mentioned approved areas under this fire danger classification.
- Fire extinguishers and water pack extinguishers will be readily available.
- Small unit infantry-type tactical activities utilizing approved ESS, MILES, and/or DMC are permitted.
- Off-road vehicle traffic should be minimized and limited to established roads and paths or low-grass areas.
- Only vehicles with factory installed spark arresters and exhaust systems are authorized for use.

**NON-PROPRIETARY INFORMATION**

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**EXTREME**

Restricts fires (open flames) and pyrotechnics. Use of pyrotechnics will be approved on a case-by-case basis to meet critical mission requirements. Smoking is allowed only inside non-government vehicles. No outside smoking is allowed in the remote Research and Development areas. “No Sweat Boulevard” is off limits to all individuals, even if pyrotechnics are not being used. Suspend non-essential testing operations. No testing will be conducted at Burn Site that emits embers with sufficient thermal capacity to start a fire outside of the cleared facility area. Welding operations are restricted to indoor areas or areas that have been shielded by partitions or welding drapes.

**EXTREME**

Additional guidance:

- Normal training activities involving the use of small arms ammunition within the NTC LFR is permitted. Rounds must be contained within the confines of the range berms. No tracer ammunition is allowed.
- Use of flares is prohibited.
- Use of pyrotechnic diversionary devices is only permitted within the Live Fire Shoot House. Use of all other pyrotechnics is prohibited unless special permission is coordinated through DOE and KAFB Fire Department.
- Only designated instructors or senior controllers will deploy pyrotechnics in approved areas under this fire danger classification.
- Fire extinguishers and water pack extinguishers will be readily available.
- Small unit infantry-type tactical activities utilizing approved ESS, MILES, and/or DMC are permitted.
- Off-road vehicle traffic should be minimized and limited to established roads and paths or low-grass areas.
- Only vehicles with factory installed spark arresters and exhaust systems are authorized for use.
- Open breech firing machine gun-type weapons are prohibited outside the LFR.

**NOTE #1:** Appropriate environmental documentation must be submitted and approved to the NNSA Albuquerque Complex / Sandia Site Office prior to conducting training on “No Sweat Boulevard”. Contact the Environmental Office at 845-5542.

**NOTE #2:** The NNSA Albuquerque Complex / Sandia Site Office will evaluate use of “No Sweat Boulevard” on a case-by-case activity-specific basis. Contact the Environmental Office at 845-5542 and the 377th ABW Fire Marshall (or delegate). Both have the authority to supersede restrictions.

**NON-PROPRIETARY INFORMATION**

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## APPENDIX I – NTC PRESENTATION AND WORK PROCESS RISK ANALYSIS COMPLIANCE REVIEW

Name of Class/Process:			Date of Review:	
Name of Lead Instructor/Supervisor:			Location of Review:	
Name of Reviewer:			Activity Being Reviewed:	
Review Points	Yes	No	N/A	Notes
Are course/process documents complete, current, and present?				
Is activity being conducted with correct personnel or student/instructor ratios?				
Are personnel wearing the correct PPE for the activity?				
Is activity being conducted in due consideration of the current weather?				
Is required communication present and in working order?				
Was a safety brief specific to the activity given?				
Is required specialized safety equipment present? (bang cans, fire extinguishers, etc.)				
Is the activity being conducted/performed as per the lesson plan/work plan?				
Is the appropriate medical personnel available for the activity being performed?				
Have the staff, students, and employees been informed of their "stop work" rights under 10 CFR 851?				

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